

LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES



**OFFICE OF FISHERIES
INLAND FISHERIES SECTION**

PART VI -A

WATERBODY MANAGEMENT PLAN SERIES

HENDERSON LAKE

LAKE HISTORY & MANAGEMENT ISSUES

CHRONOLOGY

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LAKE HISTORY

GENERAL INFORMATION

Date formed

Henderson Lake is a man-made lake formed in the 1930's by the Atchafalaya Levee construction for flood control by the U.S. Army Corps of Engineers (USACE). The damming of Bayou Berard and other streams stopped the natural drainage of this area and caused flooding during normal low water stages. Most of the flooded areas were owned by St. Martin Land Company. In 1963 and 1964, earthen dams were constructed on the outlet channel. A permanent control structure was put in place in 1968 and set at an elevation of 7.5 ft. MSL. Due to a written agreement with the St. Martin Land Company, in the 1970's the elevation of the lake was increased to 9.0 ft. MSL but would never exceed this height. The structure remained operative but siltation issues made operation of the structure difficult. Improvements and repairs to the structure were conducted in 1985-1986 and 2006. Minor work on the control structure was done in July 2013 to address mechanical issues. The damaged chain-link fencing around the structure was replaced in July 2014 in order to keep out trespassers. In November 2017, broken hydraulic lines had to be repaired on the structure. Since 2003, over \$500,000 has been spent by St. Martin Parish Government on repair costs for the structure (Guy Cormier, personal comm.).

Impoundment (Backwater area)

Henderson Lake is a backwater swamp consisting mainly of cypress, willow, and cottonwood trees. Numerous trees, stumps, logs, and submerged vegetation make up the majority of the lake's habitat. There is an unusual section in the northern reaches of the unit (Indian Bayou) that experiences high flows during certain water stages due to elevation changes and the habitat and vegetation reflect the more lotic hydrologic regime as compared to the backwater habitat that makes up the majority of the water management unit (WMU).

Owners – U.S. Army Corp of Engineers, St. Martin Land Co., State of Louisiana, and private land owners.

Purposes for creation – Flood mitigation, recreational activities and oil & gas exploration. In the document 'Atchafalaya Basin Floodway System Project, Louisiana, Master Plan Feasibility Study/Final Environmental Impact Statement' (USACE 1982), 13 WMUs were defined in the Atchafalaya Basin Floodway System. Henderson WMU was one of five recommended for initial construction. The five WMUs were selected for project implementation to improve water quality, enhanced fish and wildlife, and control sediment flow (USACE 1982).

Size (Surface Acres)

5,000 surface acres at pool stage.

Watershed

170,000 acres.

Pool stage

9.0 ft. MSL at the Lake Pelba @ I-10 gauge.

Link to gauge: http://waterdata.usgs.gov/usa/nwis/uv?site_no=302020091435700

Parish/s located

Located in St. Martin Parish, 20 miles east of Lafayette, Louisiana (Latitude – 30° 20' - Longitude – 91° 45')

Border waters

Bayou Courtableau on the north end and Bayou La Rose and the Atchafalaya River on the south end.

Drawdown description

The southern control structure is located in St. Martin Parish, south of Henderson Lake in the borrow canal adjacent to the West Atchafalaya Basin Protection Levee (WABPL). The drawdown structure is a gated system that can be opened to allow ingress and egress of boat traffic, and can be used to dewater the lake (see map of structure locations, Figure 1).

The drawdown capability of Henderson Lake is directly related to the Atchafalaya River stage. Once the river has dropped below 9 ft. MSL at the Butte La Rose gauge, the closed structure will keep Henderson Lake at 9.0 ft. If opened, the structure will allow the lake to be lowered as far down as the river level. If the river stage exceeds 9.0 ft. MSL, the water will back flow over the control structure, raising the level of the lake.

It is recommended that the water level in Henderson Lake be lowered at a rate of no more than 2-4 inches/day. At this rate the lake would roughly be drawn down 2 feet in 14 days. It is also recommended that during a drawdown, the structure only be partially opened, to slow drainage. If the gate were fully opened, the increase in current would result in the disturbance of decaying organic material within the lake as it flows towards the structure. This suspended material reduces the dissolved oxygen concentration in the water which stresses fish and other aquatic life, potentially resulting in a fish kill.

The desired water level to achieve during a drawdown is 6.0 ft. MSL. At this stage, the flats directly north and south of the I-10 Bridge are exposed to air and sunlight. This area is one of the most problematic for invasive aquatic vegetation issues. This water level also exposes most shallow areas in the northern half of the lake, stranding invasive vegetation that accumulates in that area during the summer months. The further lowering of the water level beyond 6.0 ft. MSL is not recommended due to the minimal benefits received versus the potential additional stress put on fish populations by continuing to reduce available habitat. Perhaps just as important as the biological perspective is the natural heritage perspective. Reducing the water level below 6.0 ft. MSL increases the risk of exposure of a Chitimachan Indian burial mound located in Coquille Bay. The preservation of the integrity of this burial mound is very important to the Cultural Section of the USACE, and the protection of it is required through special conditions when they grant permits within the Henderson Lake area.

Spillway – 100 ft. wide

Gate size – Gate system (open/close)

Condition – Fair to good (most recent repairs done November, 2017)

At the northern end of Henderson Lake, the Bayou Courtableau structure is owned and operated by the USACE. It is located approximately one mile south of U. S. Highway 190 between Port Barre and Krotz Springs. The structure is made up of two features. A diversion control structure completed in 1942 consisting of two weirs with crests set at 18 feet National Geodetic Vertical Datum (NGVD) that releases water into the borrow canal located on the landside of the WABPL. This diversion is also used to maintain low flows in Bayou Teche and the Vermilion River for rice irrigation and water quality control. During periods of drought, Atchafalaya River water can be pumped in through the Vermilion-Teche pumping station which is owned and operated by the USACE. That water is channeled to the Bayou Courtableau control structure via the Darbonne Bay conveyance channel. In addition, there is the Bayou Courtableau Drainage Structure, in the WABPL that releases landside flood waters into the northern end of Henderson Lake. This structure, consisting of five reinforced concrete box culverts measuring 10 ft. wide by 15 ft. high, and 234 ft. in length, was built by the USACE in 1956. This is one of only two structures that provide entry points for water into the Henderson Lake area other than precipitation. When the Atchafalaya River rises, its backwaters flow northward through the southern control structure, which is the other point of river water entry into the lake. Water entering through the southern structure also has to exit through that same structure. Water flowing into Henderson Lake from the Bayou Courtableau Drainage Structure is often of poor quality due to the high loading of organic materials from agricultural runoff in heavy rainfall and flood conditions.

The Bayou Courtableau Structure is operated by the USACE as follows:

- Water elevation 17.63 ft. from March through November
- Water elevation 15.63 ft. during December
- Water elevation 16.63 ft. during January and February

The structure is operated under this schedule because farmers northwest of Henderson Lake depend on lower water elevations to gravity drain their rice fields during the winter; and higher elevations during the growing season to be able to easily pump into and flood their fields (Saucier 2010).

Who controls

The southern control structure was built on the private land of the St. Martin Land Co. and the St. Martin Parish Government operates the control structure receiving management guidance from Louisiana Department of Wildlife & Fisheries (LDWF). The northern control structure on Bayou Courtableau is owned and operated by the USACE.



Figure 1. Location of water control structures within Henderson Lake, LA.

LAKE AUTHORITY

Association

There is no official lake association or lake commission. However, the following groups work together to manage the lake.

U.S. Army Corps of Engineers- Port Barre Office, LA (337) 585-0853

St. Martin Parish – Interim Parish President, Chester Cedars, (337) 394-2200

St. Martin Land Company - (337) 228-7501

LDWF- Inland Fisheries District 9, Lafayette office (337) 262-2080

City of Henderson, Mayor Sherbin Collette (337) 319-5267

Historically, there was never an official protocol for opening the spillway. The St. Martin Parish Government had operated the control structure as needed or by request from interested parties. During a meeting in June 2014 to discuss a potential drawdown for Henderson Lake, St. Martin Parish President Guy Cormier agreed to use the LDWF Henderson Lake Aquatic Vegetation Management Plan as the operational plan to be used during future drawdowns. This agreement remains in place as it was written as a condition to be followed in the permit issued August 15, 2014 by the USACE, and valid until November, 30, 2020.

Authorization

UNKNOWN

ACCESS

Maps with locations of boat ramps attached

[\(SEE MAP – APPENDIX I\)](#)

Boat docks

3 public boat ramps and 8 private boat ramps.

The public boat ramp located by the Welcome Center under Interstate 10 (I-10) at the Butte La Rose exit is a very popular launch for fisherman, kayakers, swamp tour operations, and other recreational users. Data collected from a USACE car-counting device showed 50,630 vehicles entering the launch area between the 12-month period of October 2012-September 2013 (USACE, personal comm.).

Piers

Bank fishing is limited. There is an opportunity for bank fishing near the public boat ramp under Interstate 10 at the Butte La Rose exit. There is also area for bank fishing up the WABPL, north of the town of Henderson, in Indian Bayou Wildlife Management Area, including the Dixie Pipeline public boat launch. Beyond that area, the levees become private property, and are marked as such to restrict access.

State/Federal facilities

Indian Bayou Wildlife Management Area, owned by the U.S. Army Corps of Engineers, is located in south-central Louisiana. The Indian Bayou area is approximately 28,500 acres

located in St. Landry and St. Martin parishes. The area is located between Baton Rouge and Lafayette, north of I-10 and south of U.S. Hwy 190 west of the Atchafalaya River. User groups consist of hunters, fishermen, hikers, canoeists and kayakers, birders, and site seers.

Link to Indian Bayou WMA:

<http://www.mvn.usace.army.mil/Missions/Recreation/AtchafalayaBasin.aspx>

Indian Bayou Office in Port Barre, LA
Park Manager, Barton Rodgers – (337) 585-0853
Indian Bayou Ranger station – (337) 228-1313

Reefs

No artificial reefs have been placed by LDWF, though some have been purchased and placed privately by fishermen to attract species such as crappie and sunfish.

SHORELINE DEVELOPMENT

State/National Parks

The recently established (2006) Atchafalaya National Heritage Area stretches across 14 Parishes in south-central Louisiana, emphasizing the cultural and ecological diversity of the area. Link to site: <http://www.atchafalaya.org/index.php>

Shoreline development by landowners

Limited development, consisting of commercial boat launches, restaurants and bait stands on private property.

One commercial boat launch, McGee's Landing, was recently purchased by the Boy Scouts of America (BSA). The launch, as well as the restaurant, adjacent campground, and property were acquired with the intent to build a large Scout facility/camp to support their 'Atchafalaya Swamp Base' initiative. The future construction of these educational facilities will undoubtedly help promote Henderson Lake and the Atchafalaya Basin, increase the recreational usage within both, as well as serve as a boost to the local economy.

Link to site: <http://www.bsaswampbase.org/>

PHYSICAL DESCRIPTION

Henderson is a backwater swamp consisting mainly of cypress, willow, and cottonwood trees. Areas such as the bays range from 20 – 30 feet deep. In the flats, water depths average 3 feet when the lake is at pool stage. Numerous trees, stumps, logs and submerged vegetation make up the majority of the aquatic habitat.

Shoreline length

90 miles

Timber type

Bald cypress (*Taxodium distichum*), black willow (*Salix nigra*), water oak (*Quercus nigra*), bitter pecan (*Carya aquatica*), and buttonbush (*Cephalanthus occidentalis*) are the predominant bottomland hardwood trees occurring in and around Henderson Lake.

Average depth

7.0 ft.

Maximum depth

30 ft.

Natural seasonal water fluctuation

Water levels can change dramatically from rainfall or changes in the Atchafalaya River stage height. During high water, Henderson receives backwater from the Atchafalaya River. During low water, Bayou Courtableau is the main source of water. Typically, water fluctuates 4 – 5 feet annually, which may increase the acreage of Henderson Lake from 5,000 to 7,500 acres. However, in some years, fluctuations can vary as much as 10 feet or more, as seen in 2016.

EVENTS / PROBLEMS

Aquatic Vegetation

There is an ongoing concern with the infestation of the aquatic plants hydrilla (*Hydrilla verticillata*) and water hyacinth (*Eichhornia crassipes*). Annual requests are received from fishermen, hunters, camp owners, and boat launch operators to clear floating plants (mainly water hyacinth) for boating access. Many requests come from owners of private pay-to-launch boat ramps and tourism businesses. Unfortunately, immediate relief is expected when vegetation is treated. However, the chemical used to control water hyacinth is a systemic herbicide and can take more than a few days to several weeks to completely kill the plants depending on the air temperature. Private boat landings, as well as the public launch at the I-10 Butte La Rose Welcome Center, are often cleared of water hyacinth only to have rafts of new plants block the ramps after changes in wind direction or water levels. During the summer and fall of 2013 and 2014, there was approximately 50% coverage of hydrilla in Henderson Lake (Figure 1). Presently, the coverage is unknown, but it appears to be significantly less than in previous years. By late summer in previous years, the north and south flats would ‘top out’ with hydrilla at the water surface, expanding growth through the entire water column. From 2015-2017, and thus far in 2018, none of the excessive growth has been observed, though small patches of hydrilla were seen in several places in early 2017. Giant salvinia (*Salvinia molesta*) has also recently become another problematic aquatic invasive species in the lake. During the fall and winter of 2015/2016, plant growth expanded from a moderate amount in December to a massive infestation by April (estimate of coverage unknown). Surveys found that the entire flooded northern woods were filled with the plants. This huge increase in giant salvinia was believed to have occurred as the result of high waters earlier than normal in the winter months providing an abundance of inaccessible backwater habitat, along with very mild winter temperatures. Moderate salvinia growth was observed during the fall and winter of 2016/2017. Record low temperatures during the winter of 2017/2018 saw a decline in the abundance of aquatic nuisance vegetation as many plants died from freezing temperatures.

Unfortunately, the tenacity of these invasive species persevered, and the spring/summer of 2018 has shown a slow but steady rebound of the plants, both in Henderson, and other state waterbodies.



Figure 1. Henderson Lake hydrilla coverage as of June, 2013.

The capability exists to lower the water level in the lake to manage hydrilla infestations. Recent dredging efforts (2012-2013) allow continued access to private boat launches and tourism businesses during low water conditions. In the past, inconsistent access was a concern among business owners, and one of the reasons drawdowns did not occur. A damaged hydraulic line prevented the opening of the structure during the normal high water period of winter/spring 2017, and heavy summer rains delayed the repairs from being possible until water levels dropped to a safe level later in the fall. St. Martin Parish Government replaced the damaged line in November 2017 (Guy Cormier, pers. comm.).

The various landowners within Henderson Lake do not always agree on management objectives. The landowners include the U.S. Army Corp of Engineers ([See Appendix II](#)), St. Martin Land Co., some State owned land and water bottoms ([See Appendix III](#)) and other minor in-holdings. It is assumed that the majority of the property not marked as state water bottoms or Corps property is private property.

State owned

Opelousas Bay	288 acres
Lake Bigeaux	34 acres
Lake Pelba	216 acres
School Board	640 acres
Total	1,178 acres

USACE aquatic plant spraying operations on Henderson Lake were discontinued on October 2, 2011. As a result, the responsibility has been accepted by LDWF.

MANAGEMENT ISSUES

AQUATIC VEGETATION

Herbicide applications are used as needed to control water hyacinth and giant salvinia infestations. Historically, an average of 3,400 acres of floating vegetation, predominantly water hyacinth, was treated annually in Henderson Lake by LDWF. Only herbicides approved for aquatic use by the EPA are used. Water hyacinth is treated with applications of 2,4-D at a rate of 0.5 gal/acre.

Henderson Lake is relatively clear and subject to excessive growth of submersed aquatic vegetation. Native species include coontail (*Ceratophyllum demersum*), fanwort (*Cabomba caroliniana*), and American lotus (*Nelumbo lutea*). Non-native species include hydrilla (*H. verticillata*), common salvinia (*Salvinia minima*), giant salvinia (*Salvinia molesta*), and water hyacinth (*Eichhornia crassipes*).

The amount of vegetation sprayed and herbicide used annually from 2008 to 2011 is found in Table 1-A. The amount of vegetation sprayed and herbicide used annually from 2012 to 2015 is found in Table 1-B. The amount of vegetation sprayed and herbicide used annually for 2016, 2017, and thus far in 2018 can be found in Table 1-C. An additional 1,000 acres sprayed in 2011 by the USACE is not included in the table. Additionally, LDWF secured a private contractor to spray additional areas using aerial and boat applications during the winter of 2011/2012. The spraying of the north flats helped to control a major nursery area of water hyacinth that continually supplied vegetation to the rest of the lake. The action helped to alleviate a large portion of the hyacinth problem.

Private boat launches were cleared of water hyacinth in November and early December 2011 as a result of using private contract sprayers. With the rise of the Atchafalaya River stage, additional hyacinth was introduced and complaints resumed.

Additional areas sprayed in 2012 included 65 acres of alligator weed and water hyacinth treated with 50 gallons of imazapyr. An aerial application was conducted in early winter of 2012, treating 360 acres of water hyacinth with 180 gallons of 2,4-D. Another treatment to 820 acres of water hyacinth was applied by boat in late spring/early summer. A total of 410 gallons of 2,4-D were applied during that effort.

Giant salvinia was first detected in Henderson Lake in the fall of 2012. Though control efforts were made, plants were observed again in 2013. Biological controls were introduced in September 2013 with the release of plant material containing giant salvinia weevils (*Cyrtobagous salviniae*). An estimated 19,360 adult weevils were released at that time. Another release, conducted in July 2015, included an estimated 14,580 adult weevils. A release made in April 2016 contained an estimated 13,986 adult weevils and were placed into heavy infestations of giant salvinia. Another release was conducted in June 2017, with approximately 31,500 weevils placed in the lake. Total stockings included approximately 79,500 weevils released over the five-year period. It appears that the weevil releases are working well in Henderson Lake, as damaged salvinia plants have been noted throughout the lake, and weevil densities remain high. Depending on the severity of winters, it appears that

some of the weevils are surviving through the winter and continue to feed on the plants the following spring. It is unknown at this time how the record low temperatures of the winter of 2017/2018 affected the weevil population in the lake.

In 2013, LDWF contracted private applicators to spray additional areas. They treated 4,080 acres of water hyacinth using 2,040 gallons of 2,4-D. All herbicide applications included a non-ionic surfactant at a rate of 0.125 gallons per acre.

During 2014, 2,215 acres of water hyacinth and 63 acres of alligator weed were treated with 2,4-D. Additionally, 34 acres of common salvinia and 56 acres of giant salvinia were treated with either a glyphosate/diquat mixture, or diquat depending on the time of year. During November 1st-March 31st, only diquat is used to spray salvinia species, while a glyphosate/diquat mixture is used from April 1st-October 31st based on the differences in plant metabolism and air temperatures. Also, 8 acres of pennywort were treated with 2,4-D. No contract spraying was necessary in 2014.

At the end of 2014, LDWF's Inland Fisheries Division began an attempt to downsize the aquatic plant program by ending temporary sprayer positions and focus more on private applicator contracts to treat problematic areas. This cost-savings effort removed 2 sprayers from the District 9 office that assisted in spraying efforts on Henderson Lake. Because of this, there is no longer a dedicated LDWF spray crew on the lake. Vegetation management will instead be primarily achieved through privately contracted herbicide treatments.

During 2015, LDWF crews treated 123.5 acres of water hyacinth as well as 6 acres of alligator weed with 2,4-D. Also treated were 31 acres of duckweed using diquat, 12 acres of common salvinia, and 17 acres of giant salvinia treated using either a glyphosate/diquat mixture, or diquat depending on the time of year as mentioned above. Two contracts through private applicators were also needed in 2015 to spray additional areas. The first contract was in February and treated 99 acres of water hyacinth with 49.5 gallons of 2,4-D. This herbicide application included a non-ionic surfactant at a rate of 0.125 gallons per acre. A second contract in December treated 80 acres of giant salvinia with 60 gallons of diquat. This herbicide application included a non-ionic surfactant at a rate of 0.25 gallons per acre.

During 2016, LDWF spray crews made foliar herbicide applications on nuisance plants such as alligator weed, duckweed, pennywort, primrose, common and giant salvinia, and water hyacinth. A total of 59 gallons were applied to 81 acres. Foliar applications of 2,4-D (0.5 gal/acre) were used to control water hyacinth. Common and giant salvinia were controlled with a glyphosate/diquat mixture of glyphosate (0.75 gal/acre) / diquat (0.25gal/acre). Diquat was applied at 1.0 gallons per acre to control duckweed. The alligator weed, pennywort, and primrose treated were not the targeted species of plants during those applications, but rather were incidentally mixed in with those plants that were being targeted. Also in 2016, two contracts through private applicators were initiated to spray additional concentrations of giant salvinia. The first contract was in May which treated 480 acres, and the second contract was in June, which also treated 480 acres. The two contracts combined treated a total of 960 acres of giant salvinia using 720 gallons of glyphosate, 240 gallons of diquat, and 240 gallons of the surfactant Turbulence.

In 2017, LDWF spray crews made foliar herbicide applications to nuisance plants such as duckweed, primrose, common and giant salvinia, sedge, water hyacinth, and water paspalum. A total of 67 gallons were applied to 97 acres. Foliar applications of 2,4-D (0.5 gal/acre) were used to control water hyacinth. Common and giant salvinia were controlled with a mixture consisting of glyphosate (0.75 gal/acre) + diquat (0.25gal/acre), or diquat (0.75 gal/acre) depending on the time of year as mentioned above. Diquat was applied at 1.0 gallon per acre to control duckweed. Primrose, sedge, and water paspalum, while not the targeted species during most applications, were incidentally mixed in and treated with those plants that were being targeted. No contract spraying was needed in 2017.

The winter of 2018 brought the coldest sustained temperatures in roughly 20 years for south Louisiana. Much of the aquatic nuisance vegetation was killed or greatly reduced as a result. Subsequently, no LDWF herbicide applications have been made thus far in 2018, nor has any contract spraying been necessary.

DRAWDOWNS

Drawdowns expose the lake bottom, and in doing so will retard aquatic weed infestations. They also improve fish spawning habitat and facilitate access for recreational and commercial activities. All management decisions related to Henderson Lake are accompanied by concerns that include access to private landings, an Indian burial ground, and boater access.

Type map

Vegetative type map sampling was conducted in the fall of 2003, 2004, 2005, and 2006. The most recent type map is included in [Appendix IV](#).

Biomass

Vegetation biomass sampling has not been conducted in Henderson Lake.

Treatment history by year

Biological

Biological treatment was first conducted in 2013 with the release of plant material containing giant salvinia weevils. An estimated 19,360 adult weevils were released at that time. Another stocking effort in late July 2015 was conducted with an estimated 14,580 adult weevils being released. April of 2016, saw an estimated 13,986 adult weevils released, and June, 2017 had an estimated 31,500 weevils added.

An additional biological control was used in an attempt to control hydrilla in spring 2014, with the release of 25,000 triploid (sterile) grass carp (*Ctenopharyngodon idella*). Larger grass carp (12+ inches) were purchased for stocking to try and reduce the amount of predation upon the newly released fish, as well as put a larger fish that can readily consume more hydrilla than smaller ones. While the results of this effort are still to be determined, it appears the carp have likely played a part in the significant reduction of hydrilla in the lake. Triploid grass carp often take several years before the effects of their predation on submerged vegetation is noticeable.

Chemical

Herbicide applications are routinely used to control water hyacinth. LDWF began controlling the invasive species in the 1960's. An average of 3,400 acres of surface vegetation, predominantly water hyacinth, was historically treated annually. Details are listed in Tables 1-A, B, & C.

In 2002, approximately 4,000 acres of hydrilla were treated by the Louisiana Department of Natural Resources (LDNR) in an effort to contain the spread. In 2006, 525 acres of hydrilla were treated by LDWF with Cutrine Plus® at a rate of 2 gallons per acre with Sonar PR® at 4 pounds per acre. Also, 500 acres were treated by LDNR. In 2009, a treatment including 3,240 lbs. of SONAR PR, 2,880 lbs. of SONAR Q was applied to 1,018 acres in the south flats of Henderson Lake. Two weeks later, the Atchafalaya River rose above flood stage, inundating Henderson Lake. The flood diluted the Sonar treatment, rendering it ineffective.

The Corps of Engineers treated approximately 1,000 acres of water hyacinth on Corps property in July, 2011.

Table 1-A. Acres of aquatic vegetation treated in Henderson Lake - listed by vegetation type and applied herbicide, for the years 2008 to 2011.

			Year				Total
			2008	2009	2010	2011	
			Area Sprayed	Area Sprayed	Area Sprayed	Area Sprayed	Area Sprayed
			Sum	Sum	Sum	Sum	Sum
Body of Water	Vegetation	Herbicide					
10302 - Henderson Lake	Algae, Filamentous	Knockout	.	.	.	1	1
		Reward	.	.	.	1	1
	Alligator weed	2,4-D	.	.	5	.	5
		Aqua Master	.	.	10	.	10
		Platoon	.	28	2	.	30
	Duckweed	Knockout	.	.	23	1	23
		Reward	.	.	.	1	1
	Frog's Bit	Knockout	.	1	1	.	2
	Hydrilla	Sonar AS	.	2,000	.	.	2,000
		Sonar PR	.	571	.	.	571
		Sonar Q	.	447	.	.	447
	Pennywort	2,4-D	6	.	.	.	6
		Diquat E Pro 2L	.	3	.	.	3
		Knockout	.	1	4	.	5
	Primrose	Platoon	.	14	2	.	16
	Salvinia, Common	Aqua Master	.	23	42	26	91
		Aquastar	15	.	.	.	15
		Diquat E Pro 2L	.	40	.	.	40
		Knockout	.	90	148	.	239
	Sedge sp.	2,4-D	.	.	.	5	5
	Water Hyacinth	2,4-D	144	60	310	3,595	4,109
		Aqua Master	.	7	65	.	72
		Aquastar	15	.	.	.	15
		Diquat E Pro 2L	.	14	.	.	14
		Knockout	.	45	34	.	79
		Platoon	.	93	731	1,080	1,904
Total			179	3,437	1,377	4,710	9,703

Table 1-B. Acres of aquatic vegetation treated in Henderson Lake - listed by vegetation type and applied herbicide, for the years 2012-2015.

			Year				Total
			2012	2013	2014	2015	Area Sprayed
			Area Sprayed	Area Sprayed	Area Sprayed	Area Sprayed	
			Sum	Sum	Sum	Sum	Sum
Body of Water	Vegetation	Herbicide	.	.	.	.	.
	Alligator weed	2,4-D	74	114	.	.	188
		Aqua Master	.	31	.	.	31
		Round-Up Custom	.	.	21	6	27
		Weedestroy AM-40	.	.	42	.	42
	Duckweed	Tribune	.	.	.	31	31
		Aqua Master	.	13	.	.	13
	Pennywort	Tribune	.	.	8	.	8
	Salvinia, Giant	Round-Up Custom	.	.	.	86	86
		Aqua Master	8	34	.	.	42
		Tribune	.	.	56	11	67
	Sedge sp.	2,4-D	.	7	.	.	7
		Aqua Master	8	.	.	.	8
		Tribune	.	14	.	.	14
	Salvinia, Common	2,4-D	.	50	.	.	50
		Aqua Master	353	217	.	.	570
		Platoon	.	10	.	.	10
		Round-Up Custom	.	75	.	6	81
		Tribune	.	.	34	6	40
	Water Hyacinth	2,4-D	6,834	1,730	.	99	8,663
		Aqua Master	.	182	.	.	182
		Platoon	.	3,990	160	.	4,150
		Round-Up Custom	.	75	21	6	102
		Tribune	.	.	156	58	214
		Weedestroy AM-40	.	300	1878	60	2238
	Water Paspalum	Aqua Master	.	47	.	.	47
Total			7,276	6,889	2,376	369	16,910

Table 1-C. Acres of aquatic vegetation treated in Henderson Lake - listed by vegetation type and applied herbicide, for the years 2016-2017, and beyond.

			Year				Total
			2016	2017	2018	2019	Area Sprayed
			Area Sprayed	Area Sprayed	Area Sprayed	Area Sprayed	
			Sum	Sum	Sum	Sum	Sum
Body of Water	Vegetation	Herbicide	.	.	.	.	.
	Alligator weed	2,4-D	2	.	.	.	.
		Tribune	.	.	.	.	.
		Round-Up Custom	1	.	.	.	.
	Duckweed	Tribune	15	18	.	.	.
	Pennywort	Round-Up Custom	3	.	.	.	.
	Primrose	Round-Up Custom	1	6			
	Salvinia, Giant	Round-Up Custom	963	.	.	.	.
		Tribune	.	25	.	.	.
	Sedge sp.	2,4-D	.	.	.	.	.
		Tribune	.	4	.	.	.
	Salvinia, Common	2,4-D	2	.	.	.	.
		Round-Up Custom	.	.	.	.	.
		Tribune	10	12	.	.	.
	Water Hyacinth	2,4-D	16	27	.	.	.
		Round-Up Custom	23	.	.	.	.
		Tribune	5	1	.	.	.
	Water Paspalum	Round-Up Custom	.	3	.	.	.
Total			1041	97	N/A	.	1138

HISTORY OF REGULATIONS

Recreational

Statewide regulations are in effect for all fish species.

The recreational fishing regulations may be viewed at the link below:

<http://www.wlf.louisiana.gov/fishing/recreational-fishing>

The 14-inch minimum length limit (MLL) for black bass was implemented as an emergency measure following the fish kill caused by Hurricane Andrew in 1992. The regulation was implemented to protect bass that survived the storm, as well as bass stocked immediately following the storm, and allow them to spawn at least once before becoming available to harvest. In 1993, the regulation was renewed with a sunset date of 1995. In 1995, the regulation was renewed again for a 2-year period. During this time, biologists were asked to determine if the regulation increased the number of large bass in angler creels. In 1997, the regulation was renewed without a sunset clause with popular support. Most anglers viewed the minimum length limit as a method to control harvest of black bass in the system. In 2012, the Inland Fisheries Section released a report entitled “Evaluation of the 14 Inch Minimum Length Limit for Largemouth Bass in the Atchafalaya Basin and Adjacent Waters, Louisiana.” The report described population characteristics of the largemouth bass population and the history of the recreational fishery. This study found that slow growth, short life span, and the frequent catastrophic events are inherent factors that preclude benefits from any recreational harvest regulation, including the 14-inch minimum length limit. As such, the 14 inch MLL was determined to be an ineffective regulation. Link to the full report: [LDWF Atchafalaya Basin Bass Report](#)

The Louisiana Wildlife and Fisheries Commission promulgated a rule to repeal the 14 inch MLL on black bass in the Atchafalaya Basin and adjacent waters. Effective June 20, 2013, regulations included a 7 fish daily creel limit with no MLL. The revised regulation was in effect for two years. Statewide regulations of a 10 fish daily creel limit went into effect on June 20, 2015.

Black Bass – no minimum length limit, 10 daily bag limit (7 fish bag limit *was* in effect for 2 years, starting June, 2013). The 2-year period ended in June 2015, with the creel limit reverting to statewide regulations.

Commercial

Statewide commercial regulations and seasons can be found at the following link:

<http://www.wlf.louisiana.gov/fishing/commercial-fishing>

DRAWDOWN HISTORY

Drawdown date

There have been several drawdowns conducted to attempt to control submersed vegetation. Hydrilla was discovered in 1994. In two years, the invasive plant covered 50% of Henderson Lake. A fall/winter drawdown in 1996/97 was unsuccessful due to heavy rains. Between 1997 and 2000, drawdowns were recommended by LDWF, but were not conducted due to lack of local public support (Table 2). In 2000/2001, a successful fall/winter drawdown was conducted, but in 2001/2002 the fall/winter drawdown was hampered by rainfall and a rise of the Atchafalaya River. In 2006, a 2-foot drawdown in the late summer enabled LDWF and DNR to apply herbicide (SONAR) to control hydrilla infestations. Approximately 1,200 acres

were treated south of I-10. Minimal control was achieved. In 2007, another 2-foot drawdown was conducted and LDWF applied Sonar. Approximately 400 acres of hydrilla were treated on the South Flats. In 2008, an attempt to draw the lake down failed due to high water levels. In 2009, another 2-foot drawdown allowed for an aerial application of Sonar that treated 1,018 acres of hydrilla coverage. Two weeks later the Atchafalaya River rose above flood stage, inundating Henderson Lake. The flood diluted the Sonar treatment, rendering it ineffective. Dense hydrilla growth in Henderson Lake remained through 2014.

Funds made available by the LDNR Atchafalaya Basin Program enabled the dredging of heavily used boat lanes near private landings. The dredging was completed in the winter/spring of 2012/2013. The work provides private boat launches and swamp tour companies continued access during a drawdown. Because this controversial issue was finally addressed, a drawdown was planned to begin in late summer 2013 through winter of 2014. However, the permit was not issued due to the length of the permitting process, aided by a government shutdown (USACE, personal communication). The USACE issued a drawdown permit, good for 5 years, in August 2014. A drawdown was then initiated in mid-August of 2014, and water levels were maintained at 6.0 ft. MSL until November 1st. During this time, the north and south flats on either side of the I-10 bridge were exposed, drying up all previously submerged hydrilla. Also, the low water levels stranded a large amount of water hyacinth across the lake, causing it to root down heavily where it was stranded. Due to a lack of rainfall, water levels remained below pool stage until heavy rains came around mid-December. These heavy storms quickly raised water levels with cold, highly turbid water to an elevation well over pool stage (up to and over 12 ft. MSL) blocking out sunlight to the hydrilla tubers or roots, and drowning the rooted-down water hyacinth. The water levels remained high for months, only slightly dropping back to 10 ft. MSL in March, and then a steadily rising Atchafalaya River heavily inundated the lake for the rest of the summer, with levels still above pool stage in August 2015. The triple combination of a successful drying out period between August and mid-November, the stocking of 25,000 triploid grass carp in the spring of 2014, and the prolonged high-water that never allowed sunlight to reach the hydrilla is believed to have reduced submergent vegetation to levels not seen on Henderson Lake in years. The perpetual water hyacinth problem was reduced to almost non-existence in 2015, though it has since rebounded. During a survey to evaluate the hydrilla coverage in July, 2015 none could be found. The hydrilla tubers are undoubtedly still there, and consecutive drawdowns will be needed to exhaust their root storages. Small patches of hydrilla were seen in early 2017. An annual fall/winter drawdown was recommended for 5 consecutive years for hydrilla control, starting in 2014. The high water levels of the Mississippi and Atchafalaya Rivers that lasted into the fall of 2015 eliminated any chance to conduct a drawdown during 2015. In July 2016, LDWF met with St. Martin Parish officials to discuss having another drawdown, and two weeks later held a public meeting in Henderson, LA to give a presentation on the drawdown proposal and to hear public concerns. By the conclusion of the meeting, it was agreed upon to go ahead with another fall/winter drawdown. The structure was opened on August 8th, and 5 days later south Louisiana was hit with unprecedented amounts of rain from an unnamed storm system resulting in 20+ inches of precipitation in many areas, and widespread flooding that would later come to be known as the "Flood of 2016". At that point the lake level went from just under 8 ft. MSL, to almost 15 ft. MSL. Though nearly 2 months of drying time was lost due to the high water levels associated with the August floods, the lake reached pool stage again in late September and the drawdown was attempted again. Water levels were lowered and maintained

during the month of October, and despite the drawdown ending on November 1st, a lack of rainfall during November kept the lake under 8 ft. MSL until heavy rains came in early December. Though abbreviated, the drawdown was successful in stranding large amounts of giant salvinia and water hyacinth. The effect on the remaining hydrilla was likely minimal. Another drawdown was planned for the fall of 2017, but mechanical issues with the control structure made it unable to be opened. Heavy summer rains delayed the repairs from being possible until the water levels dropped to a safe level later that fall. St. Martin Parish Government replaced the damaged line in Nov. 2017 (Guy Cormier, pers. comm.).

In early 2018, Inland Fisheries staff met with Mr. Chester Cedars, Interim-Parish President for St. Martin Parish, and proposed having another drawdown. At Mr. Cedar's request, Inland staff then gave a presentation for a drawdown proposal at a St. Martin Parish Council meeting in May. No opposition was voiced at this meeting, and a 2018 drawdown was agreed upon. The drawdown began August 1st, and at the time of this update, was currently still underway. The scheduled end date is November 1st.

Table 2. Years in which drawdowns have been conducted on Henderson Lake, LA.

DRAWDOWN HISTORY				
Date Opened	Date Closed	Purpose	Results	Issues
Fall 1996	Winter 1997	Hydrilla control	Unsuccessful, 40% exposed	5 ft. drawdown, heavy fall rains
1997-2000	*	Hydrilla control	Recommended	No action taken
Fall 2000	Winter 2001	Hydrilla control	Successful, 60% exposed	6 ft. drawdown, fish kill
Fall 2001	Winter 2002	Hydrilla control	Unsuccessful	Heavy rains
Late summer 06	Fall 2006	Hydrilla control	Little success w/ 2 ft. drawdown	1,200 acres treated
Late summer 07	Fall 2007	Hydrilla control	Little success w/ 2 ft. drawdown	400 acres treated
Late summer 08	Fall 2008	Hydrilla control	Unsuccessful	High water
Fall 2009	N/A	Hydrilla control	No success w/ 2 ft. drawdown	1,018 treated acres flooded by high river waters
Fall 2013 (planned)	N/A	Hydrilla control	N/A	Permit not issued (USACE)
Late Summer 2014	November 1	Hydrilla control	Successful, flats and north woods exposed	Environmental factors all played in favor of the drawdown.
Fall 2015 (planned)	N/A	Hydrilla control	Never attempted	High water
Fall 2016	November 1	Giant salvinia & hydrilla control	Successful, north woods exposed, plants	Delayed by August flood waters

			stranded	
Fall 2017 (planned)	N/A	Giant salvinia & hydrilla control	Unable to attempt	Repairs needed to control structure
Fall 2018	November 1	Giant salvinia & hydrilla control	Currently in progress	N/A

* Between 1997 and 2000, drawdowns were recommended by LDWF but were not supported by the local public, and were not conducted.

Fish kills

Fish mortality was associated with the 2001 drawdown due to low dissolved oxygen levels. Approximately 22,000 fish perished. Largemouth bass, crappie and sunfish made up approximately 27 % of the loss.

FISH KILLS / DISEASE HISTORY

In 2000 Largemouth bass virus sample – 20 bass sampled (10 tested positive)

In 2002 Largemouth bass virus sample – 23 bass sampled (0 tested positive)

A minor fish kill occurred in 1992 due to Hurricane Andrew, but was limited to the very northeast end of the lake.

Another fish kill occurred in 2005 due to Hurricane Rita. Game species such as largemouth bass, crappie, sunfish and commercial species such as catfish made up 25 % of the kill, which totaled approximately 150,000 fish.

Fish kills occurred related to the 2011 flood, though no quantitative estimates of fish killed are available.

Small, isolated fish kills were reportedly seen during the late summer of 2015 as the Atchafalaya River quickly dropped and stagnant, anoxic waters drained from the flooded forests and swamps. These reports were mentioned after the fact, and were not able to be documented.

Isolated fish kills were reported in late June of 2016 due to quickly falling water levels in the Atchafalaya River. The river had risen sharply around the beginning of the year, and remained high during spring through mid-summer. The southern control structure remained open during this time to reduce hydraulic pressure. As the water levels began dropping quickly in mid-June, stagnant, anoxic waters drained from the flooded forests and swamps of the shallow northwestern section of the lake. Upon inspection of this area, the fish kill was likely over, and therefore undocumented. The structure was closed over the July 4th weekend stopping flow and averting further fish kill potential.

Poor water quality is often associated with high water levels in Henderson Lake. Fish kills often occur when the Atchafalaya River level rises higher than the southern Henderson Lake

control structure. As the flood waters rise in the lake, dry areas become inundated, including the organic terrestrial material. Decomposition of these organic materials increases the biological oxygen demand to the extent that insufficient dissolved oxygen is available for fish. The solubility of water to oxygen also decreases in direct proportion to temperature. When the river level drops, poor quality water is concentrated in some areas as water drains. The resulting conditions can be lethal for shellfish and finfish. The potential for fish kills is especially high if flood water levels continue into summer months and are subsequently drained with a rapidly descending river hydrograph.

CONTAMINANTS / POLLUTION

Water quality

Mercury advisories – Issued by Department of Health & Hospitals in 1996, 1999, 2003 and updated in 2018. The following link gives a detailed description of the species named in the advisory and consumption rates associated with them.

[http://www.ldh.la.gov/assets/oph/Center-EH/envepi/fishadvisory/Documents/Henderson Lake Area 2018.pdf](http://www.ldh.la.gov/assets/oph/Center-EH/envepi/fishadvisory/Documents/Henderson_Lake_Area_2018.pdf)

Specific alerts pertaining to a particular waterway can be found at the Louisiana Department of Health and Hospital's (LDHH) link below.

www.ldh.la.gov/EatSafeFish

Water level

The U.S. Geological Survey has real-time data available at the following websites

<http://waterdata.usgs.gov/la/nwis/rt>

1. Lake Pelba at I-10 near Henderson, LA (Gage height and Stream level, NAVD)
http://waterdata.usgs.gov/usa/nwis/uv?site_no=302020091435700
2. Pontoon Bridge Canal near Butte Larose, LA (Gage height and Stream level, NAVD)
http://waterdata.usgs.gov/la/nwis/uv?site_no=301655091440800

Water levels can change dramatically in Henderson Lake from rainfall or rises in the Atchafalaya River. During high water, Henderson receives backwater from the Atchafalaya River. During low water, Bayou Courtableau is the main source of water. Typically, water fluctuates 4 – 5 feet annually, which may increase the acreage of Henderson Lake from 5,000 to 7,500 acres. However, in some years' fluctuations can vary as much as 10 feet or more, as seen in 2016, 2017, and 2018. These last three years have seen lake levels rise to over 18 ft. MSL.

BIOLOGICAL

Fish samples

In the 1960's and 1970's, biomass sampling (rotenone with block-off net) was conducted in Henderson Lake. From the mid 1980's to present, electrofishing, creel surveys, nets, rotenone, seines and water quality samples have been used to help monitor and manage fisheries in this water-body. Table 3 below describes sampling methods/gear types and scheduled sampling activities through 2019.

Table 3. Historical, present and proposed independent fisheries sampling conducted in Henderson Lake, LA, from 2005 to 2019.

2005	Electrofishing, creel survey, aquatic type map, aquatic weed treatment
2006	Electrofishing, gill nets, water quality, stocking, aquatic type map
2007	Electrofishing, water quality, crappie age & growth, stocking, aquatic weed treatment, lead nets, drawdown
2008	Creel survey, stocking, aquatic type map, aquatic weed treatment
2009	LMB population assessment, Electrofishing, rotenone, gill nets, seine, water quality, bass age/genetics, aquatic weed treatment
2010	LMB population assessment, Electrofishing, hoop nets, water quality, aquatic weed treatment
2011	LMB population assessment, Electrofishing, gill nets, water quality, aquatic weed treatment
2012	Electrofishing, gill nets, water quality, aquatic weed treatment
2013	Electrofishing, gill nets, water quality, aquatic weed treatment, and plankton net pulls to measure larval Asian carp abundance, creel survey
2014	Electrofishing, gill nets, water quality, aquatic weed treatment, and plankton net pulls to measure larval Asian carp abundance, creel survey
2015	Electrofishing, gill nets, water quality, aquatic weed treatment, other projects as necessary
2016	Electrofishing, water quality, aquatic weed treatment, other projects as necessary
2017	LMB population assessment, Electrofishing, water quality, aquatic weed treatment, other projects as necessary
2018	LMB population assessment, Electrofishing, water quality, aquatic weed treatment, other projects as necessary
2019	LMB population assessment, Electrofishing, water quality, aquatic weed treatment, other projects as necessary, creel survey

Lake records

9.8 lbs. for largemouth bass

Stocking History

Two species of sport fishes have been stocked into Henderson Lake in recent years, the Florida largemouth bass (FLMB) and hybrid striped bass. The stocking history of fingerlings (species and number) is shown in Table 4 below.

This past April 2018, the Booker Fowler Fish Hatchery had a surplus of advanced Florida largemouth bass (FLMB) fry from their spawning efforts, and needed places to stock these extra juvenile fish. Upon request, hatchery staff stocked 337,200 of these advanced FLMB fry in Henderson Lake.

In a further attempt at controlling hydrilla, 25,000 triploid (sterile) grass carp, 12+ inches in length were stocked during the spring of 2014. Fish were certified as being triploid through a USFWS grass carp ploidy verification program.

Table 4. The stocking history of Henderson Lake, LA, from 2000 to 2006.

Year	FLMB	Hybrid Striped bass
2000	55,182	74,583
2001	49,980	-
2002	63,008	62,882
2003	67,127	29,784
2004	66,165	-
2005	65,624	-
2006	74,720	-
Totals	441,806	167,249
* All fish were fingerlings		

Species profile

Table 5. Fish species that have been collected in LDWF samples in Henderson Lake, LA.

List of Fishes Collected in Henderson Lake, Louisiana
Northern largemouth bass, <i>Micropterus salmoides</i>
Florida largemouth bass, <i>Micropterus floridanus</i>
Black Crappie, <i>Pomoxis nigromaculatus</i>
White Crappie, <i>Pomoxis annularis</i>
Bluegill, <i>Lepomis macrochirus</i>
Redear sunfish, <i>Lepomis microlophus</i>
Green sunfish, <i>Lepomis cyanellus</i>
Warmouth, <i>Lepomis gulosus</i>
Orangespotted sunfish, <i>Lepomis humilis</i>
Longear sunfish, <i>Lepomis megalotis</i>
Redspotted sunfish, <i>Lepomis miniatus</i>
Bantam sunfish, <i>Lepomis symmetricus</i>
Banded pygmy sunfish, <i>Elassoma zonatum</i>

Gizzard shad, *Dorosoma cepedianum*
 Threadfin shad, *Dorosoma petenense*
 Black bullhead catfish, *Ameiurus melas*
 Yellow bullhead catfish, *Ameiurus natalis*
 Blue catfish, *Ictalurus furcatus*
 Channel catfish, *Ictalurus punctatus*
 Flathead catfish, *Pylodictis olivaris*
 Spotted gar, *Lepisosteus oculatus*
 Longnose gar, *Lepisosteus osseus*
 Alligator gar, *Atractosteus spatula*
 Bowfin, *Amia calva*
 River carpsucker, *Carpionodes carpio*
 Bigmouth buffalo, *Ictiobus cyprinellus*
 Smallmouth buffalo, *Ictiobus bubalus*
 Brook silverside, *Labidesthes sicculus*
 Golden topminnow, *Fundulus chrysotus*
 *Unknown darter, *Etheostoma* spp.
 Common carp, *Cyprinus carpio*
 Paddlefish, *Polyodon spathula*
 Bighead carp, *Hypophthalmichthys nobilis*
 Silver carp, *Hypophthalmichthys molitrix*
 Grass carp, *Ctenopharyngodon idella*

 Asian carp were first found in the lake in January, 2001.

*Electrofishing in the fall of 2014 found a largemouth bass with two *Etheostoma* spp. in its mouth and throat. Due to decomposition, not able to identify to species.

Genetics

Henderson Lake has a dominant native northern largemouth bass population (91%) while 9% of those fish tested have contained the Florida genome (Table 5).

Table 5. The genetic analyses of largemouth bass stocks on Henderson Lake, LA. during 1999 and 2004. Tissues were collected from LDWF standardized electrofishing samples.

YEAR	NORTHERN	FLORIDA	HYBRID	FLORIDA INFLUENCE
1999	100 %	0 %	0 %	0 %
2004	91 %	1 %	8 %	9 %

Threatened/endangered/exotic species

No threatened or endangered species have been documented within Henderson Lake. Exotic species include Asian carp (silver, bighead, common, and grass carp).

CREEL

Historic information

Angler creel surveys were conducted in 2000, 2001 and 2005. The survey method used was a dockside (access point) survey of completed fishing trips. Percent of total harvest by species is presented in Table 6.

Another creel survey was recently conducted, specifically for black bass. This survey began July 1, 2013 and continued through Dec. 31, 2014. This creel survey was designed to focus on black bass since these were the only species affected by the 2013 regulation change. The next creel survey for Lake Henderson is scheduled to begin in 2019.

Table 6. The results of creel surveys conducted on Henderson Lake, LA, by year. Results are presented as the percent of total harvest of fish by species.

SPECIES	2000	2001	2005	AVERAGE
Bluegill	34.9%	55.0%	53.2%	45.5%
Black Crappie	25.9%	14.9%	25.2%	23.6%
White Crappie	23.0%	6.6%	5.7%	13.5%
Largemouth Bass	7.0%	3.7%	4.1%	5.3%
Warmouth	1.7%	2.2%	4.9%	3.0%
Redear Sunfish	1.7%	2.7%	2.9%	2.3%
Freshwater Drum	1.0%	8.1%	0.2%	2.0%
White Bass	0.5%	1.9%	0.7%	0.8%
Blue Catfish	0.1%	1.4%	1.1%	0.7%
Channel Catfish	0.4%	1.8%	0.2%	0.6%
Yellow Bullhead	0.2%	0.0%	1.3%	0.6%
Buffalo	1.3%	0.0%	0.0%	0.6%
Yellow Bass	0.4%	1.6%	0.0%	0.5%
Bowfin	0.6%	0.0%	0.4%	0.4%
Spotted Gar	0.8%	0.0%	0.0%	0.3%
Spotted Sunfish	0.1%	0.2%	0.2%	0.1%
Carp	0.2%	0.0%	0.0%	0.1%
Black Bullhead	0.1%	0.0%	0.0%	0.0%
Smallmouth Buffalo	0.0%	0.0%	0.0%	0.0%
Flathead Catfish	0.0%	0.0%	0.0%	0.0%

HYDROLOGICAL CHANGES

GRIMMET CANAL STRUCTURE- Owned and operated by the U. S. Army Corps of Engineers, this structure is located north of Interstate 10 (I-10) between Port Barre and Krotz Springs, Louisiana near Hwy 190. This structure is in place to allow for the removal of

potential floodwaters from communities located along US 190, including Port Barre. When floodwaters reach 17.76 MSL this structure is opened and water flows through Henderson.

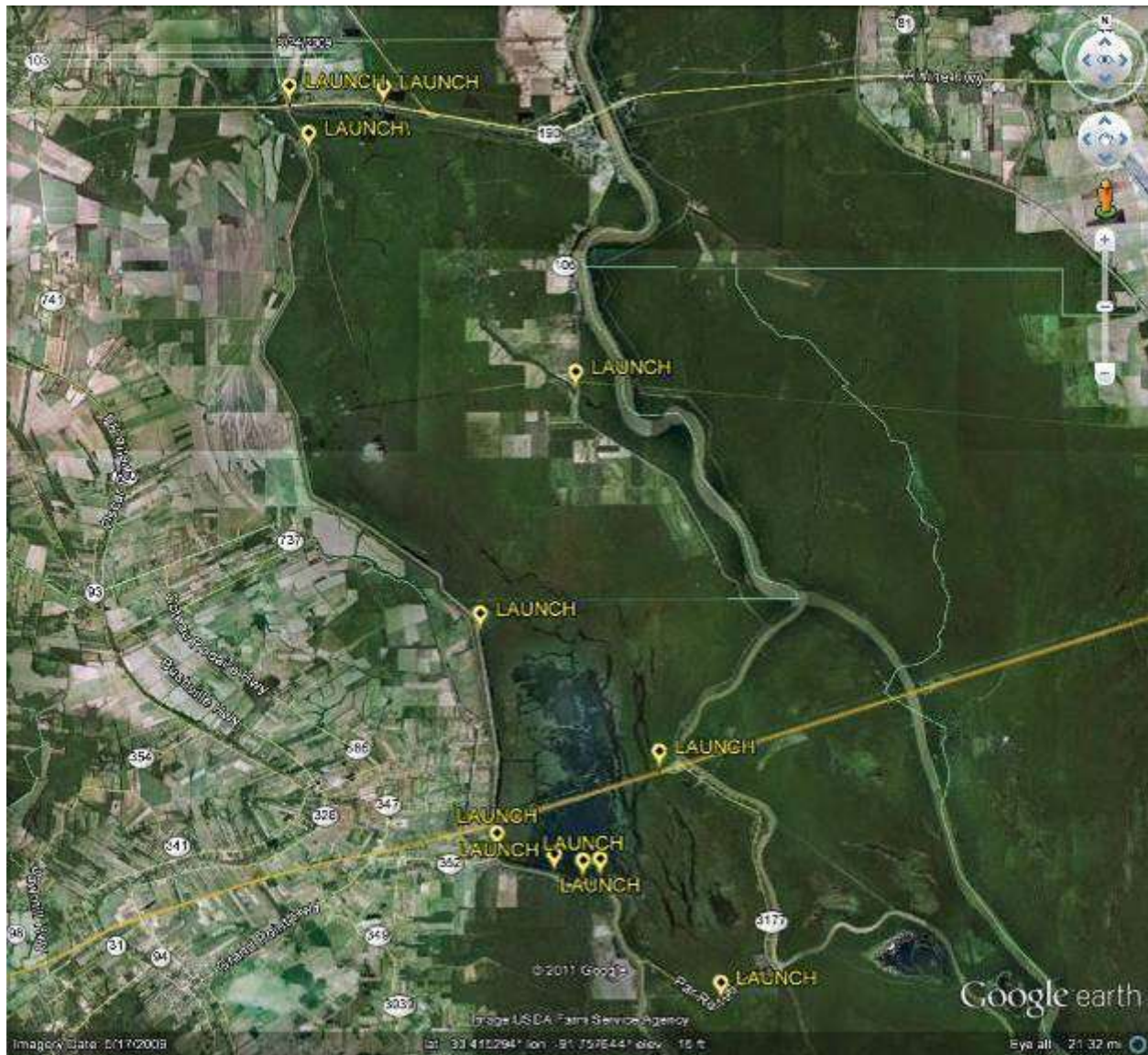
GATE ON HENDERSON – This control structure is located near Butte La Rose, south of I-10. St. Martin Parish operates this structure. This is a fixed structure set at 9.0 feet mean sea level (MSL).

DREDGING FOR I-10 – Water flow through Lake Henderson is typically from north to south, except when flood waters from the Atchafalaya River enter the system over the south control structure. Some of the canals were dredged to support specific uses, such as transport of materials to construct I-10 and for oil and gas exploration and production. At present these canals and bayous are utilized by the numerous marinas and tour operators located on the lake for fishing access and tourism. Some of these canals were re-dredged in the winter/spring of 2012/2013 in order to allow continual access during a drawdown.

Appendix I

([Click here to return](#))

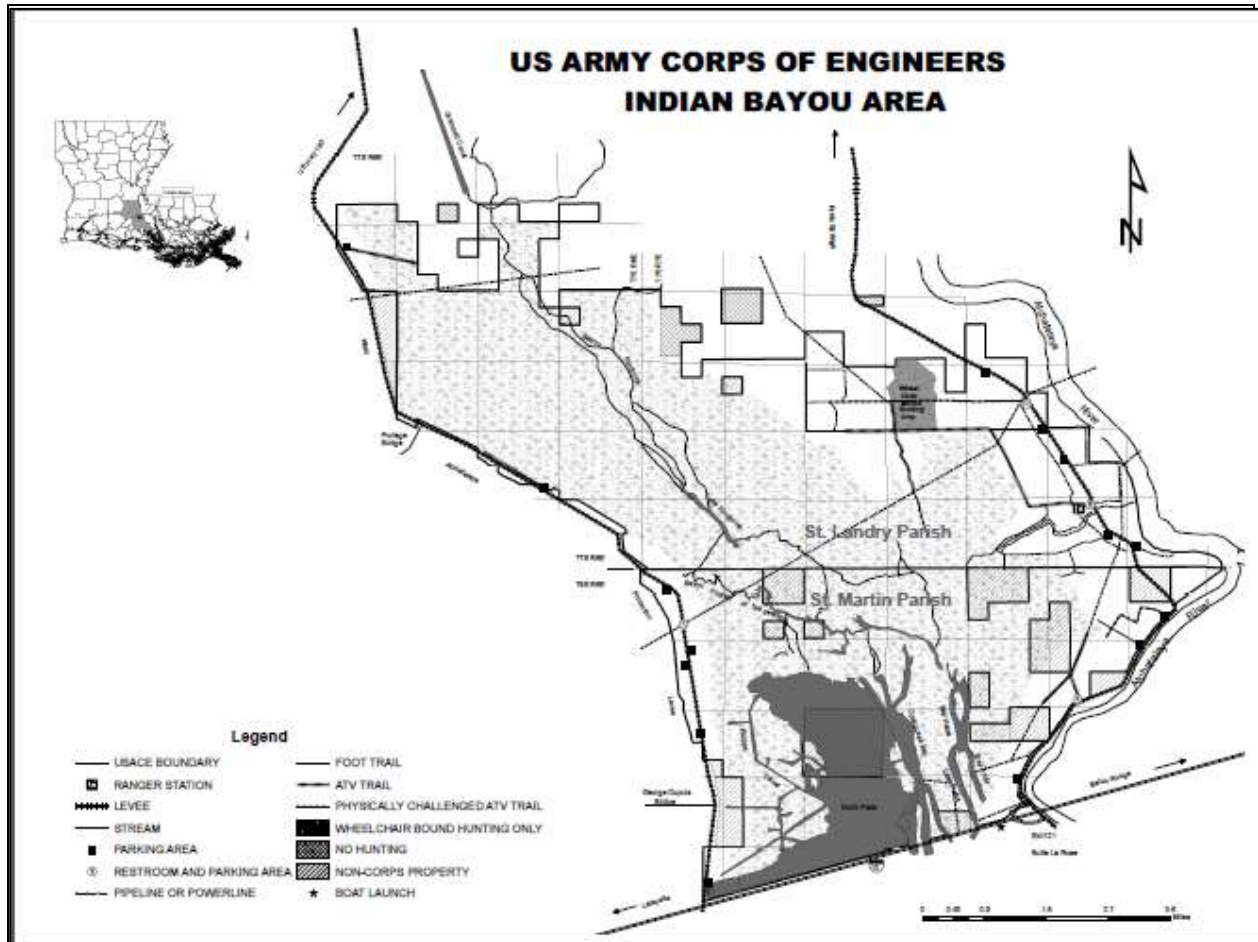
Access Map



Appendix II

([Click here to return](#))

Map of USACE property in Henderson.



Appendix III

([Click here to return](#))

Map of State Water-bottoms in Henderson Lake.

State water-bottoms in blue and state lands in orange and pink outlined in black.



Appendix IV ([click to return](#))

Henderson Lake
September 2006
Jody T. David

Henderson Lake, St. Martin parish, recently (8/28/06) was treated using SONAR to control the heavy infestation of Hydrilla south of interstate 10. Water levels in the lake were lowered two feet below pool stage to allow for adequate control; pool stage is 9.0 ft. (MSL).

Moderate amounts of common salvinia (*Salvinia minima*), coontail (*Ceratophyllum demersum*) and duckweed (*Lemna minor*) were found throughout the lake. Other plants that were observed in light to moderate amounts were primroses (*Ludwigia* spp.), sedge (*Carex* spp.), smartweed (*Polygonum hydropiperoides*), flatsedge (*Cyperus* spp.), and filamentous algae (*Pithophora* spp.) North of interstate 10 a heavy infestation of hydrilla and water hyacinth is present. This includes the north flats, Phillips canal, Coquille Bay and Fordoche Lake and bayou. These areas are Corps owned and were not treated.

